



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/284,024	04/06/1999	ULRICH DELIUS	051009/0119	1786

7590 11/29/2001

FOLEY & LARDNER  
3000 K STREET NW SUITE 500  
PO BOX 25696  
WASHINGTON, DC 200078696

EXAMINER

HON, SOW FUN

ART UNIT	PAPER NUMBER
----------	--------------

1772

DATE MAILED: 11/29/2001

13

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Advisory Action</b>	Application No. 09/284,024	Applicant(s) DELIUS, ULRICH	
	Examiner Sow-Fun Hon	Art Unit 1772	

--The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

THE REPLY FILED 13 November 2001 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE. Therefore, further action by the applicant is required to avoid abandonment of this application. A proper reply to a final rejection under 37 CFR 1.113 may only be either: (1) a timely filed amendment which places the application in condition for allowance; (2) a timely filed Notice of Appeal (with appeal fee); or (3) a timely filed Request for Continued Examination (RCE) in compliance with 37 CFR 1.114.

**PERIOD FOR REPLY** [check either a) or b)]

- a) ☒ The period for reply expires 5 months from the mailing date of the final rejection.
- b) ☐ The period for reply expires on: (1) the mailing date of this Advisory Action, or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection. ONLY CHECK THIS BOX WHEN THE FIRST REPLY WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

1. ☒ A Notice of Appeal was filed on 13 November 2001. Appellant's Brief must be filed within the period set forth in 37 CFR 1.192(a), or any extension thereof (37 CFR 1.191(d)), to avoid dismissal of the appeal.
2. ☐ The proposed amendment(s) will not be entered because:
- (a) ☐ they raise new issues that would require further consideration and/or search (see NOTE below);
  - (b) ☐ they raise the issue of new matter (see Note below);
  - (c) ☐ they are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or
  - (d) ☐ they present additional claims without canceling a corresponding number of finally rejected claims.

NOTE: \_\_\_\_\_

3. ☐ Applicant's reply has overcome the following rejection(s): \_\_\_\_\_
4. ☐ Newly proposed or amended claim(s) \_\_\_\_\_ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).
5. ☒ The a) ☐ affidavit, b) ☐ exhibit, or c) ☒ request for reconsideration has been considered but does NOT place the application in condition for allowance because: See attachment to advisory action.
6. ☐ The affidavit or exhibit will NOT be considered because it is not directed SOLELY to issues which were newly raised by the Examiner in the final rejection.
7. ☐ For purposes of Appeal, the proposed amendment(s) a) ☐ will not be entered or b) ☐ will be entered and an explanation of how the new or amended claims would be rejected is provided below or appended.

The status of the claim(s) is (or will be) as follows:

Claim(s) allowed: \_\_\_\_\_

Claim(s) objected to: \_\_\_\_\_

Claim(s) rejected: \_\_\_\_\_

Claim(s) withdrawn from consideration: \_\_\_\_\_

8. ☐ The proposed drawing correction filed on \_\_\_\_\_ is a) ☐ approved or b) ☐ disapproved by the Examiner.
9. ☐ Note the attached Information Disclosure Statement(s) (PTO-1449) Paper No(s). \_\_\_\_\_
10. ☒ Other: Attachment to advisory action.

sh

*Advisory Action*

1. The request for reconsideration has been considered but does not place the application in condition for allowance for the reasons set forth below.
2. Applicant's arguments in Paper # 12 (filed 11/13/01) with regards to the valid 35 U.S.C. 112, 2<sup>nd</sup> paragraph rejection of claims 1-11 in Paper # 9, paragraph 4 (06/13/01) have been fully considered but deemed unpersuasive. Although Applicant has used US 5,399,427 as an illustrative example that the term "thermoset" is a well recognized term of art for the term "heatset", Applicant is respectfully informed that the term "thermoset" is also a well recognized term of art for the term "crosslinked" (Alger, Polymer Science Dictionary, 2<sup>nd</sup> edition, column 1, page 567).
3. Applicant's arguments in Paper # 12 (filed 11/13/01) with regards to the valid 35 U.S.C. 112, 2<sup>nd</sup> paragraph rejection of claims 1-11 in Paper # 9, paragraph 5 (06/13/01) have been fully considered but deemed unpersuasive. The amount of residual shrinkage after heatsetting may be different after stretching of the case due to stuffing than the amount prior to stuffing.
4. Applicant's arguments in Paper # 12 (filed 11/13/01) with regards to the applicability and valid combination of Schumacher, Chacko et al. and Vicik have been fully considered but they are not persuasive.
  - a. Schumacher is the primary reference and does teach a biaxially stretched shrinkable film which prior art teaches for use as *sausage casings* ('507, column 1, lines 40-50), and that *stretching* is required for shrinkability ('507, column 8, lines 42-55). Schumacher teaches that the elastomeric components include block copolymers of polyether segments and polyamides segments, such as those commercially available

under the tradename of “Pebax” (‘507, column 3, lines 50-55), but fails to teach the claimed specific formulas of polyether and polyamide segments and the claimed residual shrinkage of the film. Chacko et al. is the secondary reference that compensates for the deficiencies of Schumacher. Chacko et al. teach that the Pebax copolymers are the polyamide ether block copolymers with the claimed formula, with specific examples such as Pebax 4011 based on nylon 6 and polyethylene glycol (‘274, column 6, lines 31-33). Chacko et al. teach that that the film, widely used for food packaging, is easily conformable, yet permits *stretching* and ready removability from the mold, thus reinforcing the advantage and hence the motivation to use the Pebax block copolymers of polyether and polyamide segments as the choice sausage casing film composition of Schumacher.

b. Vicik is the other secondary reference which compensates for the deficiency of Schumacher the primary reference. Schumacher discloses that it is well known in the art to subject the sausage casings to after-shrinking treatment during which the casing shrinks and lies more closely and wrinkle-free against the encased sausage meat. The cooked and cooled sausage is heated to at least about 80 °C (‘279, column 2, lines 25-35). The shrinkage value taught by Vicik is at least 10 % at 90 °C (‘279, column 6, lines 65-68).

As stated in the rejection, because Vicik teaches that it is well known in the art to subject the sausage casings to after-shrinking treatment during which the casing shrinks and lies more closely and wrinkle-free against the encased sausage meat, it would have been obvious to one of ordinary skill in the art to have used a residual shrinkage of 5 to

Art Unit: 1772

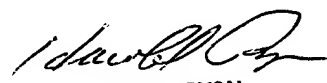
20 % at 80 °C in the invention of Schumacher in order to obtain a sausage encased by a tubular film that is wrinkle free. Applicant is advised that *prior art exists which teaches that the specific shrinkage of a sausage casing after heatsetting may be adjusted in the range between 0 to 20 % as measured in water at 80 °C.*

Any inquiry concerning this communication should be directed to Sow-Fun Hon whose telephone number is (703)308-3265. The examiner can normally be reached Monday to Friday from 9:00 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harold Pyon, can be reached on (703)308-4251. The fax phone number for the organization where this application or proceeding is assigned is (703)872-9311.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0661.

SH  
11/23/07

  
HAROLD PYON  
SUPERVISORY PATENT EXAMINER  
1772

11/28/07

# Polymer Science Dictionary

Second edition

Mark Alger

*School of Polymer Technology  
University of North London  
London, UK*

93-12-14A02327 RC 2



**CHAPMAN & HALL**

London · Weinheim · New York · Tokyo · Melbourne · Madras

Published by Chapman & Hall, 2-6 Boundary Row, London SE1 8HN, UK

---

Chapman & Hall, 2-6 Boundary Row, London SE1 8HN, UK

Chapman & Hall GmbH, Pappelallee 3, 69469 Weinheim, Germany

Chapman & Hall USA, 115 Fifth Avenue, New York, NY 10003, USA

Chapman & Hall Japan, ITP-Japan, Kyowa Building, 3F,  
2-2-1 Hirakawacho, Chiyoda-ku, Tokyo 102, Japan

Chapman & Hall Australia, 102 Dodds Street, South Melbourne,  
Victoria 3205, Australia

Chapman & Hall India, R. Seshadri, 32 Second Main Road, CIT East,  
Madras 600 035, India

---

First edition 1989

Reprinted 1990

Second edition 1997

© 1989 Chapman & Hall, 1997 Mark Alger

Typeset in 10/12 pt Times by Academic & Technical Typesetting, Bristol

Printed in Great Britain by T.J. International Ltd, Padstow, Cornwall

ISBN 0 412 60870 7

Apart from any fair dealing for the purposes of research or private study, or criticism or review, as permitted under the UK Copyright Designs and Patents Act, 1988, this publication may not be reproduced, stored, or transmitted, in any form or by any means, without the prior permission in writing of the publishers, or in the case of reprographic reproduction only in accordance with the terms of the licences issued by the Copyright Licensing Agency in the UK, or in accordance with the terms of licences issued by the appropriate Reproduction Rights Organization outside the UK. Enquiries concerning reproduction outside the terms stated here should be sent to the publishers at the London address printed on this page.

The publisher makes no representation, express or implied, with regard to the accuracy of the information contained in this book and cannot accept any legal responsibility or liability for any errors or omissions that may be made.

A catalogue record for this book is available from the British Library

Library of Congress Catalog Card Number: 96-86111

do not show elastomeric properties, but have been used as plastics and fibres.

**thermoplastic polyurethane elastomer (TPU)** Trade-names *Daltomold*, *Desmopan*, *Elastollan*, *Estane*, *Jectothane*, *Royalair*, *Texin*. A linear or only slightly crosslinked polyurethane elastomer, which is also a segmented polyurethane in which the hard blocks, consisting of segments rich in urethane or urea groups, are the main source of crosslinks (or the sole source in the case of some products such as *Estane*), as physical crosslinks. Since the hard blocks soften on heating, the polymers may be processed by injection moulding, extrusion and other melt processing methods. The polymers are formed by reaction of a polyester (e.g. polycaprolactone) prepolymer with a diisocyanate, usually MDI, followed by chain extension with a glycol. Proportions close to stoichiometric equivalence of hydroxyl and isocyanate groups are used so that both high molecular mass polymer and a minimum of allophanate crosslinks (from excess isocyanate) are formed. These materials have the high tear and tensile strengths and good oil and abrasion resistances of the cast polyurethane elastomers, but suffer from high compression set.

**thermoplastic rubber (TPR)** Alternative name for *thermoplastic elastomer*.

**thermoplastic vulcanizate (TPV)** A thermoplastic elastomer, consisting of a plastic/rubber blend, in which the rubber component of the blend has been slightly vulcanized. The vulcanization must not be so extensive as to make the material non-processable as a thermoplastic, but it does improve some properties such as heat resistance and resistance to set. Even better properties are obtained in dynamically vulcanized materials. The best known example is polypropylene/EPDM blend.

**thermoreversible crosslink** A physical crosslink which is destroyed on heating and which reforms again on cooling. Present in thermoplastic elastomers, which enables them to be processed as thermoplastic melts, but which exhibit properties typical of a vulcanized elastomer when cooled.

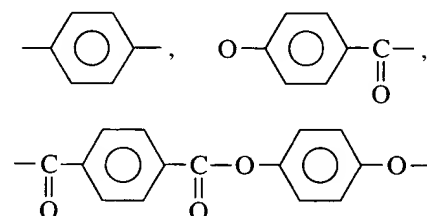
**thermoset** A polymer that is so extensively crosslinked that on heating it does not significantly soften, unlike a thermoplastic polymer. Moulded plastic products are produced by forming the polymer (or plastic material based on the polymer) as a thermosetting prepolymer which does soften and flow and which on prolonged heating becomes crosslinked to the final crosslinked thermoset structure. Common examples include phenol-formaldehyde, melamine-formaldehyde and urea-formaldehyde polymers, some polyurethanes, unsaturated polyesters and epoxy resins. In the last two cases the final crosslinked structure may be formed using catalysts at ambient temperature, rather than using heat. Nevertheless the products are still regarded as thermoset polymers. Crosslinked polymers which

are not relatively hard and rigid, notably vulcanized rubbers, are sometimes also referred to as thermoset polymers.

**thermosetting polymer** A polymer, frequently of low molecular mass, which may be crosslinked by the application of heat or by use of a suitable catalyst (or a combination of both) to a thermoset polymer. Thus rigid thermoset plastic products may be made by forming a heat softened, or liquid, thermosetting prepolymer into the shape required, followed by crosslinking.

**thermospray ionization** A technique of ionization in mass spectrometry in which the sample is ionized directly from its solution, as in a high performance liquid chromatography effluent, which is passed through a heated capillary, producing a supersonic vapour jet in a mist of droplets. Electrolyte, for example buffer, present in the solution, interacts with the solute and ionizes it. The ions are transferred to the vapour phase on break-up of the charged droplets.

**thermotropic liquid crystalline polymer** A polymer that becomes liquid crystalline by melting. Both main-chain and side-chain liquid crystalline polymers can be thermotropic though the best known examples are main-chain liquid crystalline polymers, especially aromatic polyesters. Some polymers, for example certain cellulose derivatives and poly-*n*-hexylisocyanate, are both thermotropic and lyotropic. Polymers of repeat unit structures:



show liquid crystalline behaviour in oligomers of degree of polymerization 5-7, but at  $n > 7$  such materials decompose before they melt. Therefore, to obtain thermotropic liquid crystalline behaviour in higher polymers, the  $T_m$  must be lowered by disrupting the perfect regularity of structure. This may be done by introducing flexible spacer groups between the mesogens, by introducing kinks, by substitution on the benzene rings or by copolymerization with mesogens of different shapes.

**thermotropic polymer** A polymer which exhibits a transition from a glassy melt or crystalline state to a liquid crystalline state at a characteristic temperature without being diluted with a solvent.

**Thermovyl** Tradename for a *polyvinyl chloride* staple fibre.

**theta point** The condition that a liquid exists as a theta solvent for a polymer. These theta conditions may be arrived at either by changing the solvent composition, e.g. by adding more good solvent to a binary solvent mixture, or by changing the temperature.